ZHEMOCHKIN, Boris Nikolayevich, prof., doktor tekhn.nauk; SHADURSKIY, V.L., inzh., nauchnyy red.; BUDARINA, E.M., red.izd-va; GILENSON, P.G., tekhn.red.

[Designing continuous beams and crosspieces] Raschet randbalok i peremychek. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1960. 225 p. (MIRA 13:5)
(Girders)

SHADYLOV, D. A.

Bacteriological Laboratories

More attention should he paid to the work of medical laboratory workers. Fel'd. i akush. No. 3, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

VASIL'YEVA, A.V.; MEL'KUMYANTS, N.B.; LAVROVA, V.V.; SHADZHANOV, A.M.
NEMTSOVA, V.K.

Milk as a possible transmitting factor of typhoid infection.
Zdrav. Turk. 7 no.3:17-18 Mr'63. (MIRA 16:6)

1. Iz Asjkhabadskogo instituta epidemiologii i gigiyeny (dir. dotsent Ye.S.Popova) i Turkmenskoy respublikanskoy sanitarno-epidemiologicheskoy stantsii (glavnyy vrach V.I.Mamayev).
(MILK--MICROBIOLOGY) (TYPHOID FEVER)

ACCESSION NR: AT4041506 S/2910/63/003/01-/0151/0154

AUTHOR: Shadzhyuvene, S. D., Savukinas, A. Yu.

TITLE: The problem of the classification of 21j-coefficients

SOURCE: AN LitSSR. Litovskiy fizicheskiy sbornik, v. 3, no. 1-2, 1963, 151-154

TOPIC TAGS: 21j coefficient, 3nj coefficient, 3nj coefficient classification, 6j coefficient

ABSTRACT: In the general class of 3nj-coefficients the number of coefficients increases sharply with n. This makes the proper classification of the coefficients very important. The 82 diagrams for the 21j-coefficients were originally obtained from examination of the sums of products of 6j-coefficients by A. A. Bandzaytis et al. (Trudy* AN Litovskoy SSR, B, 1, 30, 1963). This article presents a table of 21j-coefficients which are classified in accordance with the method proposed for 3nj-coefficients by S. D. Budrite e[illegible] (Lit. FS, 1, 271, 1961). The method is based on the non-vanishing properties of 3nj-c[illegible]icients. The symbols used to denote the coefficients are (p, q, h, x), where p is the number of conditions for the formation of a rectangle, q is the number of conditions for the formation of a pentagon, etc. These symbols are correlated in the table with the number of the diagram as defined by A.A. Bandzaytis. The order in the table is such that the coefficient with a larger number of conditions for the formation of a rectangle is listed first and when the number of

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ACCESSION NR: AT4041506

conditions for formation of a rectangle is the same in two coefficients, then the coefficient which has a larger number of conditions for formation of a pentagon is listed first, etc. Orig. art. has: 1 table.

ASSOCIATION: Institut fiziki i matematiki Akademii nauk Litovskoy SSR (Institute of Physics and Mathematics, Academy of Sciences, Lithuanian SSR)

SUBMITTED: 00 ENCL: 00

SUB CODE: MA, NP NO REF SOV: 007 OTHER: 000

Card 2/2

SHAEFER, Gyorgy

Development of building installations and finishing industries. Magy ep ip 10 no.3:99-105 '61.

BARUZDIN, V.I.; YEFIMOCHKINA, Ye.P.; KOZHEVNIKOV, N.I.; SHAFALOVICH, A.F., red.; CHISTYAKOVA, K.P., tekhn.red.

[Collection of problems on the probability theory] Zadachnik po teorii veroiatnostei. Moskva, Mosk.aviatsionnyi in-t, 1959. 46 p. (MIRA 13:9)

(Probabilities--Problems, exercises, etc.)

SVESHNIKOV, G.N.; GOL'DBERG, G.M., kand.tekhn.nauk; SHAKHIDZHANOVA, V.I., starshiy prepodavatel'; SHAFALOVICH, A.F., red.; CHISTYAKOVA, K.P., tekhn.red.

[Geometrial statics; lecture abstract] Geometricheskaia statika; konspekt lektsii. Sost.G.M.Gol'dberg i V.I.Shakhidzhanova. Moskva, Mosk.aviatsionnyi in-t im. Sergo Ordzhonikidze, 1959. 78 p. (MIRA 14:4)

(Statics)

KRASNOSHCHEKOVA, Tat'yana Ivanovna; MYASOYEDOVA, Sof'ya Andreyevna; ALEKSEYEV, N.I., kand. fiz.-mat. nauk, retsenzent; RIMSKIY-KORSAKOV, B.S., kand. fiz.-mat. nauk, retsenzent; SHAFALOVICH, A.F., red.

[Problems on series; manual]Zadachi po riadam; uchebnoe posobie. Moskva, Mosk. aviatsionnyi in-t im. Sergo Ordzhonikidze, 1961. 51 p. (MIRA 15:8)
(Series)

SHAFRANSKAYA, . . .

SHAFRANSKAYA, V. N. "New Diseases of Acorns and Measures for Their Control," Les i Step', vol. 2, no. 10, 1950, pp. 52-56. 99.8 L565

SO: SIRA SI-90-53, 15 Dec. 1953

SHAFAR, D. (Minsk); ZAKHAR'YENOK, N. (Minsk)

There should be an auditing department. Sov. torg. 36 no.11: 32-33 N '62. (MIRA 16:1)

1. Glavnyy bukhgalter Ministerstva torgovli Belorusskoy SSR (for Shafar). 2. Nachal'nik revizionnogo otdela Ministerstva torgovli Belorusskoy SSR (for Zakhar'yenok).
(White Russia--Retail trade--Auditing and inspection)

TSEYTLIN, L.A.; YELTYSHEVA, A.A.; GRAFAS, N.I.; TSYGANOV, A.S.; SHAFARENKO, D.I.; SHAGALOVA, B.Yu.

Induction furnace crucibles made of rammed materials, for the smelting of aluminum alloys. TSvet. met. 35 no.5:71-75 My '62. (MIRA 16:5)

(Aluminum alloys--Electrometallurgy) (Crucibles)

SHAFARENKO, D.P.; PONOMAREV, I.P.

Machine for cleaning steel pipe surfaces. Rats. i izobr. predl. v stroi. no.92:21-22 '54. (MLRA 8:6)

(Pipe, Steel)

SHAFARENKO, I.A.

Greater responsibilities with greater rights. Razved.i okh. nedr 26 no.5:50-51 My '60. (MIRA 13:7)

1. Ural'skiy terkom profsoyuza rabochikh geologorazvedochnykh rabot.
(Ural Mountain region--Prospecting)

SHAFARENKO, I.P.

Problems of the Kursk Magnetic Anomaly. Biul.tekh.-ekon.inform.-Gos.nauch.-issl.inst.nauch. i tekh.inform. no.6:79-80 '62.
(MIRA 15:7)

(Kursk Magnetic Anomaly)

KOROBOV, P.I.; KHL.B.IKOV, V.B.; I.G..SOV, A.F.; SKOCHINSKIY, A.A.; SHEVYAKOV, L.D.; M.L.. .KO., .V.; .LESHKIN, F.M.; MOSKAL'KOV, Ye.F.; POKROVSKIY, M.A.; KAL.ICH. .. .P.; BOGOLYUBOV, B.P.; A.UTYUNOV, N.B.; BOYKO, V.Ye.; B..ZA, N.M.; FEDOROV, V.F.; AGOSHKOV, M.I.; MARCHENKOV, A.V.; VORONIN, L.N.; IPATOV, P.M.; NAZAROV, P.P.; SLUTSKAYA, O.N.; CHERNENKO, N.B.; RABINOVICH, V.I.; S..LVSKIY, V.N.; TROITSKIY, A.V.; GOL'DIN, Ya.A.; DZHAPARIDZE, Ye.A.; ZHURAVLEV, S.P.; KUZNETSOV, K.K.; MALEVICH, N.A.; MARINENKO, M.P.; MARTYNOV, G.P.; NATAROV, P.F.; PERTSEV, M.A.; ROSSMIT, A.F.; .YASNO. .A.; SOSEDOV, O.O.; VI.. ..ADOV, V.S.; ZUBAREV, S.N.; SHAFARENKO, I.P.

Nikolai Nikolaevich Patrikeev; an obituary. Gor.zhur. no.6:76 Je '60. (MIRA 14:2)
(Patrikeev, Nikolai Nikolaevich, 1890-1960)

SHAFARENKO, I.P.

Results of a contest on the complete use of iron ores. Gor.zhur. no.2:75-76 F '63. (MIRA 16:2)
(Iron ores) (Ore dressing)

SHAFARENKO, I.P.

Introducing flame boring of blast holes. Biul. tekh.-ekon. inform. Gos. nauch.-issl. inst. nauch. i tekh. inform. 18 no.10:54-55 O '65. (MIRA 18:12)

SHAFARENKO, I.P.

Improving the quality of ores and eliminating their deficiency. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekh.inform. 16 no.11:5-7 '63. (MIRA 16:11)

SHAFARENKO, I.F.

Development of the iron-ore industry on the basis of Kursk Magnetic Anomaly deposits. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekh.inform. 17 no.7:81-82 Jl '64. (MIRA 17:10)

SHAFARENKO, I.P.

Introduction of thermal piercing of blast holes in open mines. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform 17 no.11:76-77 N '64. (MIRA 18:3)

22 (1) 5 SOV/27-59-2-16/30

AUTHOR: Shafarenko, M., Deputy School Director

TITLE: A Technical Propaganda Workshop (Kabinet tekhnicheskoy propagandy)

PERIODICAL: Professional'no-tekhnicheskoye obrazovaniye, 1959, Nr 2, pp 25 - 26 (USSR)

ABSTRACT: In 1957, the Nauchno-tekhnicheskoye obshchestvo bumazhnoy i derevoobrabatyvayushchey promyshlennosti(NTO) (Scientific-Technical Society of the Paper and Woodworking Industry) decided to establish a Technical Propaganda Workshop in cooperation with the Technical School Nr 6, Kiyev. It was put into operation in January 1958, and has become a center of technical propaganda for the above mentioned school, the Kiyevskiy derevoobrabatyvayushchiy kombinat (Kiyev Woodworking Combine) and the Kiyevskaya mebel'naya fabrika imeni Bozhenko (Kiyev Furniture Plant imeni Bozhenko). The school trains joiner-cabinet makers and woodworking machine-operators. In 1958, the Technical Propaganda Workshop organized a series of lectures for the students and instructors of the school. The lecturers included: Mr. Zbarskiy, Senior

Card 1/3

Scientific Worker of the Ukrainskiy nauchno-issledovatel'skiy institut mekhanicheskoy obrabotki drevesiny (Ukrainian Scientific-Research Institute of Wood Machining); Candidate of Technical Sciences Docent Berdinskikh; Engineer Kharchenko; Mr. Taran, Chief Combine Mechanic; Mr. Naumov, Chief of the Design Office of the Furniture Plant imeni Bozhenko; Docent Petrushi and Mr. Isakov, Senior Scientific Worker at the above mentioned institute. The Workshop's bibliographic activities are of considerable importance, and much has been done to keep abreast of recent literature. Great interest was shown in the group consultations of Mr. Faktor, Chief of the Combine Planning Section, on the specific economics of production, and of Engineers Semenovskiy and Garasevich on the durability of materials and automation of technological processes. The Workshop also organizes discussions and lectures on various themes. Such discussions have been conducted by Mr. Kozak, Director of the Combine, Mr. Salivon, Workshop Chief, and Technical Inspector Matushanskiy. During one of the excursions organized, the participants visited the Kiyevskiy kombinat stroitel'nykh detaley (Kiyev Combine of Construction Parts), and were made familiar with the sawdust

doors production by utilizing synthetic glues.

ASSOCIATION: Tekhnicheskoye uchilishche Nr 6, Kiyev (Technical School Nr 6, Kiyev).

SHAFARENKO, M.

Study room for the propagation of technology. NTO 2 no.6:47 Je '60. (MIRA 14:2)

1. Zamestitel' predsedatelya soveta pervichnoy organizatsii Nauchno-tekhnicheskogo obshchestva derevoobrabatyvayushchego kombinata, Kiyev.

(Kiev—Woodworking industries)

SHAFARENKO, M.

Connection between schools and the industries providing vocational training. Prof.-tekh. obr. 20 no.1:7-8 Ja '63. (MIRA 16:2)

1. Zamestitel' direktora po uchebno-proizvodstvennoy rabote tekhnicheskogo uchilishcha No.6, Kiyev.
(Furniture workers—Education and training)

PARKHOMENKO, Vladimir Mikhaylovich; SHAFARENKO, Mark Samoylovich; OSIPOV, M.I., red.; KOVAL'ZON, F.P., red.; NESMYSLOVA, L.M., tekhn.red.

[Training of cabinetmakers and operators of woodworking machines] Podgotovka stoliarov-krasnoderevtsev i stanochnikov po derevo-obrabotke. Moskva, Vses.uchebno-pedagog.izd-vo Proftekhizdat, 1960. 61 p. (MIRA 13:9)

1. Starshiy master proizvodstvennogo obucheniya (for Parkhomenko).
2. Zamestitel' direktora po uchebno-proizvodstvennoy rabote tekhnicheskogo uchilishcha No.6 g.Kiyeva (for Shafarenko).
(Woodwork--Study and teaching)

PARKHOMENKO, Vladimir Mikhaylovich, inzh.pedagog; SHAFARENKO.Mark Samoylovich, inzh.-pedagog; MAKSAKOV, M.F., red.; SEDOVA, Z.D., red. izd-va; SHIBKOVA, R.Y., tekhn. red.

[Engineering and economic calculations in wood processing] Tekhniko-ekonomicheskie raschety po derevoobrabotke. Moskva, Goslesbumizdat, 1962. 148 p. (MIRA 15:12)

1. Tekhnicheskoye uchilishche No.6 goroda Kiyeva (for Parkhomenko, Shafarenko).
(Wood-using industries--Tables, calculations, etc.

SHAFARENKO, Mark Samoylovich, inzh.-prepodavatel'

[Mechanical processing of wood; handbook for the foreman of woodworking shops] Mekhanicheskaia obrabotka drevesiny; posobie masteru derevoobrabatyvaiushchego tsekha. Moskva, Izd-vo "Lesnaia promyshlennost'," 1964. 107 p. (MIRA 17:8)

1. Zamestitel' direktora po uchebno-proizvodstvennoy rabote gorodskogo professional'no-tekhnicheskogo uchilishcha No.16, deystvuyushchego na proizvodstvennoy baze Kiyevskogo derevoobrabatyvayushchego kombinata i mebel'noy fabriki im. Bozhenko.

SHAFARENKO, O.O.

AUTHOR: Shafarenko, O.O., Moscow 3-58-4-18/34

TITLE: Vuz Dispensaries (Vuzovskiye profilaktorii)

PERIODICAL: Vestnik Vysshey Shkoly, 1958, # 4, pp 59 - 60 (USSR)

ABSTRACT: Dispensaries were first attached to the Moskovskiy energeticheskiy institut (Moscow Institute of Energetics) and the Leningrad and Kiyev universities.

Because of the good results, these hospitals were later established at the Tekstil'nyy institut, Politekhnicheskiy institut (Textile and Polytechnical Institutes) in Leningrad as well as at the Lesotekhnicheskaya akademiya (Academy of Forest Technology); in Sverdlovsk-at the Ural'skiy politekhnicheskiy institut (Ural Polytechnical Institute), in L'vov - at the Polytechnical Institute and University; at the Tartu and Moscow universities; in Kazan' - at the Kazanskiy aviatsionnyy institut (Kazan' Aviation Institute); in Kiyev and Khar'kov - at the polytechnic institutes. At present, there are 20 of these dispensaries attached to the vuzes of the USSR Ministry of Higher Education. They possess 575 beds and have a transient capacity of over 7,000 students per year.

Treatment is convenient as it is of the outpatient type.

AVAILABLE: Library of Congress

Card 1/1

SHAFAROVICH, I. R.

"Investigations into the Theory of Finite Expansions," a doctoral dissertation delivered on 13 June 1946 at V.A.Steklov Mathematical Institute, AS USSR.

Vestnik AS USSR 8/9, 1946

Šafarevič, I. R. Investigations on the theory of finite extensions. Uspehi Matem. Nauk (N.S.) 2, no. 2(18), 223–226 (1947). (Russian)

[Summary of a thesis at the V.A. Steklov Mathematical Institute, 1946.] The introduction consists of a brief survey over the development of the theory of algebraic equations from Cardano and Ferrari via Abel and Galois to the present time, and a short account of three cases where a complete enumeration of all extensions of a field k with a commutative group can be given ((1) field of rational functions of one complex variable: theory of Abelian functions; (2) field of rational numbers: theory of class fields; (3) field of p-adic numbers: local theory of class-fields).

The dissertation falls into three parts. In the first part finite extensions with a p-group as Galois group ("p-extensions") of the field of p-adic numbers or a finite extension of it are studied. The ground field must not contain the pth roots of unity (other than 1). If k is such an extension of degree n_0, and if γ denotes the free group with n_0+1 generators, then a one-to-one correspondence between these extensions and the self-conjugate subgroups of γ with prime-power index is established. If K_1 and N_1 are coordinated, the Galois group of K_1 is isomorphic to γ/N_1; and if K_2 and N_2 are also coordinated, and $K_1 \supset K_2$, then $N_1 \supset N_2$ and vice versa. In this manner the problem of extensions with prescribed group is solved: if the p-group G of order p^n and rank (minimal number of generators) α is given, then over the field K there exist extensions with G as Galois group if and only if $\alpha \leqq n_0+1$, and the number of distinct extensions is $\alpha^{-1}p^{(n_0+1)(n-\alpha)}(p^{n_0+1}-1)(p^{n_0+1}-p)\cdots(p^{n_0+1}-p^{\alpha})$.

In the second part unramified p-extensions of the field of algebraic functions of characteristic p are studied. Known results in the case of a commutative Galois group are extended to the case of a noncommutative Galois group, again by means of the self-conjugate subgroups of some free group. The arithmetical character of the problem complicates the demonstrations appreciably.

The last part deals with a problem in the theory of p-adic fields. Let K be an Abelian extension of a field of p-adic numbers k, given by the multiplicative group H of the elements of k; let now k be an extension of some subfield R. The Galois group of K over R is constructed with the help of the theory of algebras. No proofs of the results are given.

K. A. Hirsch (Newcastle-upon-Tyne).

Source: Mathematical Reviews, Vol 10 No. 2

SHAFAREVICH, I. R.

SHAFAREVICH, I. R.

Shafarevich, I. R. On Galois groups of $\mathfrak{p}$-adic fields. C. R. (Doklady) Acad. Sci. URSS (N.S.) 53, 15–16 (1946).

Let $K \supset k \supset R$, where R is a $\mathfrak{p}$-adic completion of the rational field, k/R is normal with Galois group $\mathfrak{F} = \{\sigma, \tau, \cdots\}$ and K/k is Abelian with group $\mathfrak{A} = \{\alpha, \beta, \cdots\}$. Let K be class field to the group H of numbers in k and assume H is invariant under $\mathfrak{F}$ so that K is normal over R. Then the Galois group $\mathfrak{G}$ of K/R is a Schreier group extension [Zassenhaus, Lehrbuch der Gruppentheorie, Teubner, Berlin, 1937, p. 89] such that $\mathfrak{G}/\mathfrak{A} \cong \mathfrak{F}$; $\mathfrak{G}$ is completely determined by the automorphisms α^σ and a factor set $\alpha_{\sigma,\tau}$ in $\mathfrak{A}$. The author proves the following formula. Let A be the simple algebra with center R, degree $(K:k) = m$ and invariant $1/m$. Then $A = (k/R, a_{\sigma,\tau})$ for some factor set $a_{\sigma,\tau}$ of numbers of k. The norm residue symbol $\alpha(a) = (a, A/\mathfrak{p})^{-1}$ maps nonzero elements $a \epsilon k$ onto elements $\alpha(a) \epsilon \mathfrak{A}$. Then $(\alpha(a))^\sigma = \alpha(a^\sigma)$ and $\alpha_{\sigma,\tau} = \alpha(a_{\sigma,\tau})$. [For terminology and existence theorems see Deuring, Algebren, Ergebnisse der Math., v. 4, no. 1, Springer, Berlin, 1935, chaps. V, VII.] The proof uses Nakayama's formula on the relation between factor sets and norm groups [Math. Ann. 112, 85–91 (1935)], followed by computation with factor sets. Nakayama has recently applied similar computations to local class field theory [Jap. J. Math. 18, 877–885 (1943); these Rev. 7, 363].

G. Whaples (Madison, Wis.).

Source: Mathematical Reviews, Vol 8, No. 5

SHAFAREVICH, I.

Shafarevitch, I. On p-extensions. Rec. Math. [Mat. Sbornik] N.S. 20(62), 351–363 (1947). (Russian. English summary)

The author proves that, if the field k is algebraic of degree n over the p-adic rationals, and if k does not contain the pth roots of unity, then the p-extensions of k (i.e., those whose Galois groups are p-groups) are in one-to-one correspondence with those subgroups T, of the free group S with $n+1$ generators, for which the factor group S/T is a p-group. The Galois group of the p-extension is isomorphic to the factor group of the corresponding normal subgroup. The proof depends only on group theory, especially Schreier's theory of subgroups of free groups [Abh. Math. Sem. Hamburgischen Univ. 5, 161–183 (1927)], and the determination of the degrees of a chain of fields $K_0=k, K_1, K_2, \cdots$, each of which is maximal Abelian, of type $(p, p, \cdots)$, over the preceding. This answers the question of what p-groups are realizable as Galois groups over such fields. [O. F. G. Schilling, Trans. Amer. Math. Soc. 47, 440–454 (1940); these Rev. 1, 328, has found all realizable l-groups for all $l\neq p$, but not for $l=p$.]

If k is a function field of one variable with an algebraically closed field of constants, of characteristic p, the same theorem holds for the unramified nondegenerate p-extensions of k, if $n+1$ is replaced by the invariant γ of Hasse and Witt [Monatsh. Math. Phys. 43, 477–492 (1936)]. Witt [J. Reine Angew. Math. 174, 237–245 (1936)] had already determined all realizable p-groups in this case.

G. Whaples.

Source: Mathematical Reviews, Vol 8 No. 10.

SHAFAREVICH, I.R.

Šafarevič, I. R. A general reciprocity law. Doklady Akad. Nauk SSSR (N.S.) 64, 25–28 (1949). (Russian)

It is well known that the general reciprocity law in algebraic number fields reduces to the problem of evaluating the p^mth power norm residue symbols $\left(\frac{\alpha,\beta}{\mathfrak{p}}\right)$, where $\mathfrak{p}|p$. The author states that α and β can be represented in the form $\pi^a w \prod E(\alpha_i, \pi^i)\zeta^{p^m a}$, where π is a local uniformizing parameter, w a root of unity of order prime to p, $E(\alpha, x)$ a certain power series in x, $\zeta^{p^m a}$ a p^mth primary number, and ν runs through a set of integers relatively prime to p. Using this decomposition a p^mth primary number $\zeta^{p^m A}$ is defined in such a way that $\left(\frac{\alpha,\beta}{\mathfrak{p}}\right)=\zeta^{S(a)}$, where $a=A^p-A$ and $S(a)$ is the trace of a [cf. H. Hasse, J. Reine Angew. Math. 176, 174–183 (1936)]. No proofs are given.

W. H. Mills (New Haven, Conn.).

Source: Mathematical Reviews, Vol 11 No. 4

SHAFAREVICH, I.R.

Šafarevič, I. R. A general reciprocity law. Mat. Sbornik N.S. 26(68), 113-146 (1950). (Russian)

Let k be an arbitrary discrete valuated field of characteristic zero containing the primitive p^nth roots of unity. Let the residue class field of k be perfect. Then if λ and μ are arbitrary nonzero elements of k, a p^nth-primary number (λ, μ) is defined using the methods of the paper reviewed above; it is a bilinear anti-symmetric function of λ and μ, closely related to the norm residue symbol. The results stated in the previous paper are proved for the case $p \neq 2$, $n = 1$. An apparent disagreement between the results of the two papers is due to a misprint in the first paper.

W. H. Mills (New Haven, Conn.).

8 Jun
1952

Source: Mathematical Reviews, Vol 11 No. 4

SHAFAREVICH, I. R.

Theory of Numbers

New proof of the Kronecker-Weber theorem. Trudy Mat. inst. no. 38. 1951

Monthly List of Russian Accessions, Library of Congress, May 1952. UNCLASSIFIED.

SHAFAREVICH, I. R.

USSR/Mathematics - Number Theory, Modern Algebra (Contd) May/Jun 52

Minsk) and with 54 reports being read, accompanied by active discussion amounting to heated debates in many of them. Brief abstracts of some of the reports are given, but the complete report is given in the cases of Kurosh, Delone, Kolmogorov, Markov, Gel'fond, Meyman, Sanov, Vilenkin, and concluding remarks by Delone.

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USSR/Mathematics - Number Theory, Modern Algebra May/Jun 52

"Conference on Algebra and on the Theory of Numbers," I. R. Shafarevich

"Uspekh Matemat Nauk" Vol VII, No 3 (49), pp 151-178

All-Union Conf on Algebra and Number Theory was held in Moscow, 7 - 12 Sep 51, with 102 mathematicians from various cities of the Union taking part (namely, Moscow, Leningrad, Sverdlovsk, Molotov, Khar'kov, Petrozavodsk, Vil'nyus, Tallin, Tomsk, Kishinev, Chernovits, Kazan', Rostov, Uryupinsk, Ufa, Saratov, Samarkand, Alma-Ata, Ivanov,

218T72

SHAFAREVICH, I. R.

[illegible]

[illegible]	[illegible]	[illegible]
Shafarevich, I. R.	"The General Law of Reciprocity"	Mathematical Institute imeni V. A. Steklow, Academy of Sciences USSR (1)

SHAFAREVICH, I.R.; ORLOV, V.B., redaktor; GAVRILOV, S.S., tekhnicheskiy redaktor.

[Solution of higher degree equations; Sturm's method] O reshenii uravnenii vysshikh stepenei; metod Shturma. Moskva, Gos.izd-vo tekhniko-teoret. lit-ry, 1954. 23 p. (Populiarnye lektsii po matematike, no.15). (MIRA 8:4)
(Equations, Roots of)

SHAFAREVICH, I. R.

MEN'SHOV, D.Ye.; SHAFAREVICH, I.R.; MOROZOVA, Ye.A.; ZOLOTAREV, V.M.

Sixteenth mathematical olympiad for Moscow schools. Usp.mat.nauk 9 no.3:253-256 '54. (MLRA 7:10)
(Mathematics--Competitions)

SHAFAREVICH

USSR/Mathematics - Group theory

Card 1/1

Author : Shafarevich, I. R.

Title : Construction of fields with given Galois group of order l^a

Periodical : Izv. AN SSSR, Ser. mat. 18, 261-296, May/Jun 1954

Abstract : Expounds a new method for the construction of fields with a given Galois group of order l^a This method gives a more extensive class of fields than familiar earlier Scholz-Reichardt method. In particular, it is applicable even for the case $l = 2$. Presented by Acad I. M. Vinogradov.

Institution :

Submitted : November 13, 1953

SHAFAREVICH, I. R.

1-F/W

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Šafarevič, I. R. On the problem of imbedding fields. Izv. Akad. Nauk SSSR. Ser. Mat. 18, 389–418 (1954). (Russian)

Le "problème d'immersion," qui fait l'objet du travail, est le suivant: soient G un groupe (d'ordre fini), g un sous-groupe invariant de G, F le quotient G/g. Si k_0 est un corps (de degré fini) de nombres algébriques, et si k/k_0 est une extension galoisienne, dont le groupe de Galois G_{k/k_0} est identifié avec F, il s'agit de prouver (si possible) l'existence et de donner une méthode de construction d'une surextension galoisienne K/k_0 de k/k_0, dont le groupe de Galois G_{K/k_0} puisse être identifié avec G de telle manière que l'application canonique de G_{K/k_0} sur G_{k/k_0} s'identifie avec l'homomorphisme canonique de G sur F. L'auteur résout ce problème [dont le cas où g est commutatif a été résolu par A. Scholz, Math. Z. 30, 332–356 (1929)] dans le cas, où, à la fois: 1) G est le produit semi-direct $F \cdot g$ de F et de g; 2) g est un p-groupe; 3) ou bien la classe c de g est $<p$, ou bien l'ordre m de F est premier à p.

Au §1, certains types de groupes, appelés nilpotents dispositionnels et centralement dispositionnels, sont définis. Une puissance p^ν de p étant fixée, soit $G_d^{(c)}$ le quotient du produit libre de d groupes cycliques $S_j = \{s_j\}$ d'ordre p^ν par le c-ième terme de sa suite centrale descendante. Ce groupe

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est abélien si, et seulement si $c=1$ (en supposant $d>1$). Un groupe à opérateurs sera dit nilpotent dispositionnel par rapport à F et à p^r, si, en tant que groupe abstrait, il est un $G_{d}^{(c)}$ et si, dans les groupes cycliques S_i les générateurs peuvent être convenablement choisis et notés $t_{\xi,i}$ ($\xi \in F$; $i=1, 2, \cdots, d$) de manière que le groupe d'opérateurs devienne F opérant selon les formules $t_{\xi,i}^{\sigma}=t_{\xi\sigma,i}$ ($\sigma \in F$). Ce groupe à opérateurs sera noté $G_{d,F}^{(c)}$, et tout p-groupe opéré par F est une image opératoirement homomorphe de quelque $G_{d,F}^{(c)}$. Un p-groupe opéré par F est dit centralement dispositionnel pour F si son centre est (pour quelque p^e) dispositionnel pour F, et on montre que tout p-groupe opéré par F et de classe $<p$ est une image opératoirement homomorphe de quelque groupe centralement dispositionnel. Soient Z le centre de $G_{d,F}^{(c)}$, $Z^{(r)}$ le groupe des puissances p^r-ièmes ($r \leqq q$) des éléments de Z, $G_{d,F}^{(c,r)}=G_{d,F}^{(c)}/Z^{(r)}$. En se servant d'un théorème de R. Thrall [Bull. Amer. Math. Soc. 47, 303–308 (1941); MR 2, 307] sur la structure du centre des $G_{d}^{(c)}$ quand $c<p$, l'auteur prouve que, sous cette hypothèse, $G_{d,F}^{(c,r)}$ est une image opératoirement homomorphe d'un groupe convenable Γ (opéré par F), où le noyau d'homomorphisme est un groupe abélien dispositionnel pour F et pour une puissance convenable de p. Ces préliminaires de la théorie des groupes permettent de réduire le problème d'immersion avec l'hypothèse $G=F\cdot g$ à une suite de problèmes d'immer-

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Šafarevič, I. R. Construction of fields of algebraic numbers with given solvable Galois group. Izv. Akad. Nauk SSSR. Ser. Mat. 18 (1954), 525–578. (Russian)

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L'auteur montre que, pour tout corps (de degré fini) k de nombres algébriques et pour tout groupe résoluble G, il existe des extensions K/k, dont le groupe de Galois soit (à l'isomorphie près) G. Il le fait en donnant une méthode inductive de construction de telles extensions, la démonstration de la possibilité de poursuivre cette construction aussi loin que cela est nécessaire se faisant par les méthodes généralisant celles de ses travaux dans le même journal 18 (1954), 261–296, 389–418 [MR 16, 571, 1001].

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Les considérations de la théorie des groupes permettent de simplifier comme suit le problème: si G est une image homomorphe d'un groupe G', la solubilité du problème pour G' entraîne sa solubilité pour G; en combinant ceci avec le théorème d'Ore sur l'existence, dans un groupe résoluble G, d'un sous-groupe invariant nilpotent N et d'un sous-groupe propre G^* tels que $G=G^*/N$, on montre qu'il suffit de savoir résoudre le problème suivant: k/k_0 étant une extension galoisienne de groupe résoluble Γ, scholzienne (mod M), où M est divisible par une puissance

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suffisemment grande de p, et g étant un p-groupe opéré par Γ, construire une surextension K/k_0 de k/k_0, dont le groupe de Galois soit le produit semi-direct $\Gamma \cdot g$ des Γ et g et qui soit aussi scholzienne (mod M). D'autre part, tout groupe d'exposant divisant p^q opéré par Γ est une image homomorphe d'un groupe de la forme $G_{\Gamma,d,q}{}^{(c)}$, défini comme suit dans le second travail cité de l'auteur: m étant l'ordre de Γ, considérons le groupe libre engendré par dm générateurs $s_{\xi,i}$ ($\xi \in \Gamma$; $i=1, 2, \cdots, d$). Posons, en plus, $s_{\xi,i}{}^{\gamma}=s_{\gamma\xi,i}$. Le groupe opéré par Γ ainsi défini sera noté $G_{\Gamma,d}$, et on notera $G_{\Gamma,d,q}$ le quotient de $G_{\Gamma,d}$ par son sous-groupe caractéristique (donc stable pour Γ) engendré par les puissances p^q-ièmes de ses éléments. $G_{\Gamma,d,q}{}^{(c)}$ est le quotient de $G_{\Gamma,d,q}$ par le c-ième terme de sa suite centrale descendente, considéré comme opéré par Γ.

k/k_0 étant une extension galoisienne, dont le groupe de Galois soit $\Gamma=G_{k/k_0}$, elle est dite scholzienne (mod M) si: 1) tous les di[illegible]eurs premiers de M dans k_0 et tous les idéaux premiers [illegible]infini de k_0 se décomposent complètement dans k/k_0; 2) tous les facteurs premiers dans k du discriminant de k/k_0 sont de degré 1 dans k/k_0 et leurs normes absolues sont toutes $\equiv 1$ (mod M). Un $\alpha \in k$ est dit

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p-invariant dans k/k_0 si, pour tout $\sigma \in \Gamma$, on a $\alpha^\sigma \equiv \alpha$ (mod $k^{(p)}$), où $k^{(p)}$ est le groupe des puissances p-ièmes des éléments du groupe multiplicatif k^* de k, et on appelle classe de p-invariance toute classe (mod $k^* k^{(p)}$), dont les éléments sont p-invariants. G étant une extension (au sens de Schreier) donnée de Γ par un groupe g, une surextension galoisienne K/k_0 de k/k_0 sera dite une G-extension de k/k_0 si G_{K/k_0} peut être identifié avec G de manière que $G_{K/k}$ le soit avec g et que l'homomorphisme canonique de G_{K/k_0} sur G_{k/k_0} le soit avec celui de G sur Γ. Une telle extension est dite une p-surextension si l'ordre de g est une puissance de p. Elle est dite une extension centrale (de k/k_0) si g est contenu dans le centre de G, et elle est dite centrale simple si, en plus, g est un groupe cyclique d'ordre premier. A. Scholz avait montré [Math. Z. 30 (1929), 332–356] que toute p-extension centrale simple de k/k_0 est réalisable si k/k_0 est scholzienne (mod p^h) pour un h suffisemment grand. L'auteur, dans son premier travail cité, a montré que, k/k_0 étant une extension galoisienne scholzienne (mod p^h) et X étant une classe de p-invariance dans k/k_0, la condition nécessaire et suffisante

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pour que l'on puisse choisir un $\mu \in X$ de manière que $k(\mu^{1/p})/k$ soit scholzienne (mod p^λ) est que certains invariants (définis par l'auteur) (χ, X) (où χ parcourt certains caractères de degré 1 et d'ordre p de Γ) et $(X)_\lambda$ soient $=1$. Soient Π un p-groupe de Sylow de Γ, $\bar{k}$ le sous-corps de k appartenant à Π et X une classe de p-invariance dans $k/\bar{k}$. Supposant que k contient les racines p-ièmes de l'unité et que k/k_0 est scholzienne (mod M), où M se divise par une puissance suffisamment grande de p, l'auteur définit, dans le § 1 du présent travail, certains invariants $[\chi, X]$ (comprenant les (χ, X) comme cas particulier), $(X)_M$ (égal à $(X)_\lambda$ si $M=p^\lambda$) et $[X]_\mathfrak{p}$, et il montre, dans le § 2, que l'égalité à 1 de tous ces invariants est la condition nécessaire et suffisante pour qu'il existe un $\mu \in X$ tel que: 1) $\bar{k}$ soit le plus petit corps intermédiaire de k/k_0 par rapport auquel $K=k(\mu^{1/p})$ soit galoisien; 2) tous les corps conjugués distincts de K/k_0 soient linéairement disjoints (dans leur ensemble) sur k; 3) le composé de tous ces corps (autrement dit le corps de Galois K' de K/k_0) soit, également, scholzien (mod M) sur k_0.

Dans le § 3, l'auteur détermine la condition nécessaire et suffisante pour que les p-extensions centrales arbitraires de k/k_0 puissent se réaliser de manière que (en

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désignant par K/k_0 l'extension centrale considérée de k/k_0) les conditions précédentes 1), 2) et 3) soient satisfaites. Il est, évidemment, nécessaire pour cela que les invariants $[\chi, X]$, $(X)_M$ et $[X]_\nu$ soient identiquement égaux à 1 sur tout leur domaine de définition; mais, en plus, certains autres invariants $(X, Y)^{(t)}_{\nu_1,\nu_2,\cdots,\nu_{t-1}}$ définis par l'auteur, doivent aussi être $=1$ identiquement, et l'ensemble de ces conditions est suffisant. Les définitions des invariants $[\chi, X]$, $(X)_M$, $[X]_\nu$, $(X, Y)^{(t)}_{\nu_1,\nu_2,\cdots,\nu_{t-1}}$ et les démonstrations des résultats indiqués des §§ 1, 2 et 3 constituent la partie la plus essentielle du travail, mais sont trop compliqués pour qu'on e.. puisse donner ici même une idée.

Dans le § 4, l'auteur applique le résultat du § 3 pour démontrer l'existence (pour un p fixé) des $\Gamma \cdot G_{\Gamma,d,e}{}^{(c)}$-extensions K/k_0 de k/k_0. Soient $G_{\Gamma,d,e}{}^{(c,r)}$ le quotient de $G_{\Gamma,d,e}{}^{(c)}$ par le groupe des éléments σ de son centre tels que $\sigma^{p^{c-r}}=1$, et Z_r le noyau de l'homomorphisme naturel de $G_{\Gamma,d,e}{}^{(c,r)}$ sur $G_{\Gamma,d,e}{}^{(c,r-1)}$. Z_r est un groupe abélien opéré par Γ. Π étant un p-groupe de Sylow de Γ, soit $Z_{r,0}=Z_r$, $Z_{r,1}=[Z_{r,0}, \Pi]$, $\cdots$, $Z_{r,t}=[Z_{r,t-1}, \Pi]$, $\cdots$ la suite des commutateurs successifs de Z_r avec Π, et soit $G_{\Gamma,d,e}{}^{(c,r,t)}=G_{\Gamma,d,e}{}^{(c,r)}/Z_{r,t}$. $Z_r/Z_{r,t}$ est un groupe abélien

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opéré par Π, et on notera $\mathfrak{A}$ ce groupe avec Π comme groupe d'opérateurs (même si d'autres éléments de Γ préservent $Z_{r,t}$ et opérent, ainsi, dans $Z_r/Z_{r,t}$). L'auteur définit, à l'aide de $G_{\Gamma,d,q}{}^{(c,r,t)}$ en tant qu'extension de $\mathfrak{A}$, un certain groupe $G_{\Gamma,d,q}{}^{(c,r,t)*}$ opéré par Γ tel que, en vertu d'un théorème de Gaschütz [J. Reine Angew. Math. 190 (1952), 93–107; MR 14, 445], $\Gamma \cdot G_{\Gamma,d,q}{}^{(c,r,t)*}$ possède, comme image homomorphe, un groupe de la forme $\Gamma \cdot G_{\Gamma,d,q}{}^{(c,r,t)}$. D'autre part, il existe un homomorphisme naturel de $G_{\Gamma,d,q}{}^{(c,r,t)*}$ sur $G_{\Gamma,d,q}{}^{(c,r,t-1)*}$, et le noyau N^* de cet homomorphisme est un groupe, contenu dans le centre de $G_{\Gamma,d,q}{}^{(c,r,t)*}$ (donc abélien) et engendré, en tant que sous-groupe stable de ce groupe, par un de ses sous-groupes abstraits N, où tout opérateur appartenant à Π induit l'identité.

L'auteur prouve, en employant certains homomorphismes de $G_{\Gamma,d,q}{}^{(c,r,t)*}$ dans $G_{\Gamma,\delta,q}{}^{(c,r,t)*}$ $(d>\delta)$ analogues à ceux de son second travail cité, que si d est suffisemment grand par rapport à δ et si Q/k_0 est une $\Gamma \cdot G_{\Gamma,d,q}{}^{(c,r,t)*}$-extension de k/k_0, qui est scholzienne (mod M), il existe une sous-extension K/k_0 de Q/k_0, qui est une $\Gamma \cdot G_{\Gamma,\delta,q}{}^{(c,r,t)*}$-extension de k/k_0 telle que tous les invariants $[\chi, X]$, $(X)_M$, $[X]_\nu$ et $(X, Y)_{\nu_1,\nu_2,\cdots,\nu_{e-1}}{}^{(t)}$ de K/k_0 soient égaux à 1 chaque fois qu'ils ont un sens. Dès lors, la possibilité de construire une $\Gamma \cdot G_{\Gamma,d,q}{}^{(c)}$-extension de k/k_0 où k/k_0 est scholzienne modulo un entier M_e divisible par une puissance suffisemment grande (et dé-

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pendant de c) de p, se démontre par l'induction suivante: on suppose, pour un $x<c$ pour un $r<q$ et pour un i, que, pour tout d, il existe des $\Gamma\cdot G_{\Gamma,d,q}{}^{(x,r,i)*}$-extensions scholziennes (mod M_e) de k/k_0. De lors, il en existe de telles extensions $\bar{K}/k$, où, en plus, tous les invariants indiqués sont $=1$ identiquement. Mais alors, si $\bar{k}$ est le corps intermédiaire de k/k_0 appartenant à Π, on peut, en vertu du § 3, construire, pour tout d, une extension centrale $Q/\bar{k}$ de $\bar{K}/\bar{k}$ telle que, si K est le corps de Galois de Q/k_0, K/k_0 soit une $\Gamma\cdot G_{\Gamma,d,q}{}^{(x,r,i+1)*}$-extension scholzienne (mod M_e) de k/k_0. On a $G_{\Gamma,d,q}{}^{(x,r,0)*}=G_{\Gamma,d,q}{}^{(x,r)}$ et, pour quelque m, $G_{\Gamma,d,q}{}^{(x,r,m)*}=G_{\Gamma,d,q}{}^{(x,r+1)*}$. Ainsi, comme $\Gamma\cdot G_{\Gamma,d,q}{}^{(x,r,m)*}=\Gamma\cdot G_{\Gamma,d,q}{}^{(x,r+1)*}$ admet $\Gamma\cdot G_{\Gamma,d,q}{}^{(x,r,m)}=\Gamma\cdot G_{\Gamma,d,q}{}^{(x,r+1)}$ comme image homomorphe, l'existence, pour tout $x<d$, d'une $\Gamma\cdot G_{\Gamma,d,q}{}^{(x,r)}$-extension scholzienne (mod M_e) de k/k_0 entraîne celle d'une $\Gamma\cdot G_{\Gamma,d,q}{}^{(x,r+1)}$-extension de k/k_0 de même forme. Comme $G_{\Gamma,d,q}{}^{(x,0)}=G_{\Gamma,d,q}{}^{(x)}$ et $G_{\Gamma,d,q}{}^{(x,q)}=G_{\Gamma,d,q}{}^{(x+1)}$, l'existence, pour tout d, d'une $\Gamma\cdot G_{\Gamma,d,q}{}^{(x)}$-extension scholzienne (mod M_e) de k/k_0 entraîne celle d'une $\Gamma\cdot G_{\Gamma,d,q}{}^{(x+1)}$-extension de k/k_0 de même forme, d'où, en vertu de $G_{\Gamma,d,q}{}^{(0,0,0)}=1$, résulte l'existence des $\Gamma\cdot G_{\Gamma,d,q}{}^{(e)}$-extensions de k/k_0 scholziennes (mod M_e).

Le travail se termine par un complément, où est démontrée une généralisation au cas non-galoisien du résultat du travail dans Izv. Akad. Nauk SSSR. Ser. Mat. 18 (1954), 327–334 [MR 16, 572] de l'auteur, dont il a besoin dans une démonstration du § 2. *M. Krasner.*

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Šafarevič, I. R. On extensions of fields of algebraic numbers solvable in radicals. Dokl. Akad. Nauk SSSR (N.S.) 95, 225–227 (1954). (Russian)

Il est affirmé que, pour tout corps de degré fini k de nombres algébriques, il existe une extension K/k dont le groupe de Galois est un groupe résoluble G donné d'avance, et des indications sur la marche de la démonstration sont données, qui montrent qu'elle doit être une généralisation de celle du travail analysée ci-dessus. Comme dans ce travail, le problème est réduit au cas, où G est un groupe $G_{d,\nu}^{(c)}$ de type spécial tel que tout groupe résoluble, dont l'ordre n'aie comme diviseurs premiers que les nombres premiers donnés $p_1, p_2, \cdots, p_\nu$ soit un groupe facteur de quelque groupe de ce type. L'auteur définit la notion générale d'extension scholzienne et, dans le cas de telles extensions ayant un $G_{d,\nu}^{(c)}$ comme groupe de Galois, il définit certains invariants, dont il affirme que leur égalité à 1 est la condition nécéssaire et suffisante pour que l'extension considéré puisse être plongée dans sa surextension centrale de groupe $G_{d,\nu}^{(c+1)}$. D'autre part, comme dans le mémoire cité de l'auteur, pour tout δ il existe une constante $C(\delta)$ telle que, dans toute extension scholzienne de groupe $G_{d,\nu}^{(c)}$ avec $d \geqq C(\delta)$, il existe une sous-extension de groupe $G_{\delta,\nu}^{(c)}$ ayant tous ces invariants égaux à 1, d'où l'existence d'une extension K/k de groupe $G_{\delta,\nu}^{(c)}$ résulte par induction sur c.

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ci-dessus et le rôle important joué par les invariants définis
dans cette note. Dans la seconde partie de la présente note,
l'auteur formule, à l'aide de ces invariants, la condition
nécessaire et suffisante pour qu'une extension scholzienne
$k(\alpha_1^{1/p}, \alpha_2^{1/p}, \alpha_3^{1/p})/k$ soit immersible dans une surextension
dont le groupe de Galois soit le quotient du produit libre
de 3 groupes cycliques d'ordre p (ou p est un nombre pre-
mier) par le troisième terme de sa suite centrale descendante.
Il en résulte qu'une condition nécessaire d'immersibilité,
donnée par B. N. Delone et D. K. Faddeev [Mat. Sb. N.S.
15(57), 243–284 (1944); MR 6, 200] et H. Hasse [Math.
Nachr. 1, 40–61 (1948); MR 10, 426], n'est pas suffisante,
contrairement à une hypothèse de Hasse, fait qui a été
montré récemment aussi par D. K. Faddeev [Dokl. Akad.
Nauk SSSR (N.S.) 94, 1013–1016 (1954); MR 15, 938]
par un exemple plus particulier. *M. Krasner* (Paris).

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Dans la prémière partie de cette note, l'auteur énonce le résultat suivant: F et G étant deux groupes d'ordre fini, dont G est un p-groupe de classe $\leq p$, soit $\mathfrak{G}$ un produit semi-direct de F par G, autrement dit une extension de F par G (au sens de Schreier), F pouvant opérer sur G d'une manière non-triviale, telle que sa classe de cohomologie soit l'unité du second groupe de cohomologie de F dans G. Alors, toute extension L d'un corps k de degré fini de nombres algébriques ayant F comme groupe de Galois peut être plongé dans une surextension K/k dont le groupe de Galois soit $\mathfrak{G}$ (il s'agit, bien entendu, d'immersion identifiant l'homomorphisme naturel de $\mathfrak{G}$ sur F avec l'homomorphisme naturel du groupe de Galois de K/k sur celui de L/k). De quelques indications sur la marche de démonstration données par l'auteur, il résulte la dépendance de cette démonstration par rapport à la théorie ésquissée dans sa note analysée (OVER)

Voici les définitions de l'auteur: h étant un entier divisible par $p_1 p_2 \cdots p_s$, K/k est dite scholzienne relativement à h si tous les diviseurs premiers du discriminant de K/k dans K sont de degré 1 dans K/k et ont leurs normes absolues $\equiv 1 \pmod{h}$ et si tous les diviseurs premiers de h dans k ainsi que tous les diviseurs premiers à l'infini de k se décomposent complètement dans K/k. Soit π l'ensemble $\{p_1, p_2, \cdots, p_s\}$; $G^{(c)}_{d,\pi}$ est le quotient $S_d/N^{(c)}_{d,\pi}$ du groupe libre S_d à d générateurs par son sous-groupe invariant $N^{(c)}_{d,\pi}$ défini par la récurrence suivante: $N^{(0)}_{d,\pi} = S_d$; $G_i/N^{(c-1)}_{d,\pi}$ étant un p_i-groupe de Sylow de $G^{(c-1)}_{d,\pi} = S_d/N^{(c-1)}_{d,\pi}$ et N_i étant le plus grand sous-groupe invariant de S_d contenu dans le groupe engendré par les puissances p-ièmes des éléments de G_i et par les commutateurs de ces éléments avec ceux de S_d, $N^{(c)}_{d,\pi}$ est l'intersection des N_i $(i = 1, 2, \cdots, s)$. Quant à la définition des invariants, qui sont de trois types: $(\chi, X)^{(c)}$, $(X)_h{}^{(c)}$ et $(X)_\phi{}^{(c)}$, dont les deux premiers généralisent les invariants (χ, X) et $(X)_h$ du travail cité de l'auteur et dont le troisième est nouveau, elle est trop compliquée pour être donnée ici.

M. Krasner (Paris).

SHAFAREVICH, L.R.

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*Schafarewitsch, L. R. Über die Auflösung von Glei-
chungen höheren Grades (Sturmsche Methode). Mit
einem Anhang: Das Hornersche Schema, von H. Karl.
Kleine Ergänzungsreihe zu den Hochschulbüchern für
Mathematik, XVII. VEB Deutscher Verlag der Wis-
senschaften, Berlin, 1956. 29 pp.
Translation, by Gero Zschuppe, of the 1954 Russian
edition [MR 16, 404].

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TRANSLATION FROM: Referativny zhurnal, Matematika, 1957, Nr 1, p 25, (USSR)

AUTHOR: Shafarevich, I.R.

TITLE: The Galois Theory and the Arithmetic of Numerical Fields (Teoriya Galua i arifmeticka chislovykh poley)

PERIODICAL: Tr. 3-go Vses. matem. s"yezda, 2, Moscow, AN SSSR, 1956, p 8

ABSTRACT: Bibliographic entry

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AUTHOR: Shafarevich, I. R.

TITLE: Birational Equivalence of the Elliptical Curves (O biratsional'noy ekvivalentnosti ellipticheskikh krivykh)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 2, pp.267-270 (USSR)

ABSTRACT: The author examines elliptical curves (curves of type I) over any field k. Of this field it is only assumed here that its characteristic is different from 2 and 3. Two curves with Weierstrassian form are then and only then birationally equivalent when their absolute invariants $j = 4a^3/(4a^3 + 27b^2)$ are identical. When k is not algebraically closed the elliptical curve given over k can in a certain finite expansion of the field k be brought to the Weierstrassian form. The author here examines a certain finite normal expansion K/k of the field k and investigates the elliptical curves γ, which are given over k and are birationally equivalent to ω over K. Any automorphism σ of the field K/k can be continued to the automorphism $\varphi_\gamma(\sigma)$ of the field K(M) (when $M^\sigma = M$) and then it

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Birational Equivalence of the Elliptical Curves

can, due to the isomorphism of K(M) with K(x,y), be transferred to K(x,y). Evidently $\varphi_\gamma(\sigma\tau) = \varphi_\gamma(\sigma)\,\varphi_\gamma(\tau)$ applies. The case inverse to this is also discussed. When the automorphisms s_γ are written down in the form $s(x,y) = \varepsilon(x,y)+p$, theorem 1 is obtained: Every elliptical curve γ over k, which over K to the curve ω is birationally equivalent with the equation $y^2 = x^3 + ax + b$; a, b, ϵ, k determine the system of the automorphisms $\varepsilon_\gamma(\sigma)$ of the field K(x,y) and the points $P_\gamma(\sigma)$ of the curve ω over K. The following relations apply:

$$\varepsilon_\gamma(\sigma\tau) = \varepsilon_\gamma(\sigma)\,\varepsilon_\gamma(\tau)^\sigma \quad P_\gamma(\sigma\tau) = P_\gamma(\sigma)\,\varepsilon_\gamma(\tau) + P_\gamma(\tau)^\sigma.$$

Every system of automorphisms and points satisfying these conditions is determined by a certain curve γ. The curves γ_1 and γ_2 are then and only then birationally equivalent when such an automorphism ε and such a point P on the ω exists that

$$\varepsilon_{\gamma_1}(\sigma) = \varepsilon_{\gamma_2}(\sigma)\ \varepsilon^{1-\sigma},\ P_{\gamma_1}(\sigma) = \varepsilon^{-\sigma}(P_{\gamma_2}(\sigma) + \varepsilon_{\gamma_2}(\sigma)\ P - P^\sigma)$$

applies. Some further theorems are given, one of them reads as follows: There exists only a finite number of birationally equivalent nonequivalent curves over the field of the alge-

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Birational Equivalence of the Elliptical Curves

braic numbers k which have the given value of the absolute invariant j and a simple first degree divisor in the given finite expansion K/k. There are 9 references, 2 of which are Slavic.

PRESENTED: November 13, 1956, by I. M. Vinogradov, Academician

SUBMITTED: November 12, 1956

AVAILABLE: Library of Congress

Card 3/3

20-114-4-10/63

AUTHOR: Shafarevich, I. R.

TITLE: Exponents of Elliptic Curves (Pokazateli ellipticheskikh krivykh)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 4, pp. 714-716 (USSR)

ABSTRACT: The present paper shows the following: Above the field of rational figures R elliptic curves $\mathcal{Y}$ exist with exponents of any quantity, where even the Jakobi curve ω can be prescribed to the curve $\mathcal{Y}$ in any manner. For the proof the author uses the group $H(\omega)$ which is formed by the classes of birational curves, equivalent above k, with an assumed Jakobi curve ω. This group was first defined by A. Weil in Am.J. Math., Vol. 77, Nr 3, p. 493 (1955). The author further uses a construction of this group already described in one of his previous papers. The following homomorphism applies: $\varphi_{\mathcal{Y}} : H^1(G, \mathcal{O}_K) \rightarrow H^1(G_{\mathcal{Y}}, \mathcal{O}_{K_{\mathcal{Y}}})$. First the author investigates the group $H^1(G_{\mathcal{Y}}, \mathcal{O}_{K_{\mathcal{Y}}})$. The equation of ω is assumed to have the form $y^2 = x^3 + ax + b$, $\Delta = 4a^3 + 27\,b^2 \neq 0$, where a and b are integer numbers. By H_p the author denotes the subgroup of those elements of the group H whose orders with p

Card 1/3

are mutually elementary. In the study of the group $H^1(G_{\mathfrak{p}}, \mathfrak{A}_{K_{\mathfrak{p}}})_p$ it can be assumed that the field $K_{\mathfrak{p}}$ has no higher branch. Some definitions and assumptions are then given. Finally the author gives two theorems. The first is not included in this abstract, since it would require an explanation of all terms contained in it, but the seconds reads as follows: In the group of elliptic curves which possesses an assumed Jakobi curve above the field of rational figures elements of any order exist. To that belongs the following corollary: Among the elliptic curves possessing an assumed Jakobi curve above the field of rational figures curves exist whose exponent is divisible by any assumed figure. All proofs, with considerable simplifications, are also applicable to the fields of rational functions above the field of complex numbers. There are 9 references, 2 of which are Slavic.

Card 2/3

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548510020-5"

PRESENTED: December 26, 1956 by I.M. Vinogradov, Member of the Academy

SUBMITTED: December 20, 1956

Card 3/3

Shafarevich, I. R.

AUTHOR: KOSTRIKIN, A.I., SHAFAREVICH, I.R. 20-6-4/48

TITLE: Homology Groups of Nilpotent Algebras (Gruppy gomologiy nil'potentnykh algebr)

PERIODICAL: Doklady Akad.Nauk SSSR, 1957, Vol.115, Nr.6, pp.1066-1069 (USSR)

ABSTRACT: The authors consider the upper homology groups $H^n(N,k)$, where N is a nilpotent associative algebra of finite rank over an arbitrary field k. Let the dimension of the vector space $H^n(N,k)$ be b_n and it is called the n-dimensional Betti's number of N.

Theorem: Let $N = N_1 + \dots + N_m$ be a direct sum of m nilpotent algebras; $R_N(t) \equiv \sum_{n=0}^{\infty} b_n t^n = R(t)$, $R_{N_i}(t) = R_i(t)$ the corresponding Poincare's functions. Let

$$\frac{1}{R(t)} - 1 = \sum_{i=1}^{m} \left(\frac{1}{R_i(t)} - 1 \right).$$

Theorem: We have

$$b_n - b_{n-1} + \dots + (-1)^n b_0 \geqslant \frac{1+(-1)^n}{2}, \qquad n=1,2,\dots.$$

Card 1/2 Theorem: The Betti's numbers of a nilpotent algebra and a finite

p-group are positive.
Theorem: If all Betti's numbers of a nilpotent algebra N are bounded in their totality over a finite field k, then $R_N(t)$ is a rational function. (Conjecture: for every nilpotent algebra of finite rank the $R_N(t)$ are rational functions of t).

Some further similar results and one example for the existence of infinitely many algebras with bounded Betti's numbers are given.

ASSOCIATION: Mathematical Inst.im.V.A.Steklov,AN USSR (Matematicheskiy institut im. V.A.Steklova AN SSSR)

SUBMITTED: March 21, 1957
AVAILABLE: Library of Congress

SHAFAREVICH, I. R.

"A group Of Elliptic Curves."

Paper submitted at Intl. Cong. Mathematicians , Edinburgh 14-21 Aug 1958.

Shafarevich, I.R.

AUTHOR: VENKOV, B.A., SHAFAREVICH, I.R. 42-1-11/13

TITLE: Dmitriy Konstantinovic Faddeyev On the Occasion of his 50^{th} Birthday) (Dmitriy Konstantinovic Faddeyev (k pyatidesyatiletiyu so dnya rozhdeniya))

PERIODICAL: Uspekhi Matematicheskikh Nauk, 1958, Vol. 13, Nr. 1, pp. 233-238 (USSR)

ABSTRACT: This survey represents the scientific career of the algebraist and number theorist D.K. Faddeev (Leningrad) and contains a list of 38 publications of Faddeev and a photo of him.

AVAILABLE: Library of Congress

Card 1/1 1. Biography 2. Scientific reports-Mathematics

AUTHOR: Shafarevich, I.R. SOV/20-120-6-14/58

TITLE: The Embedding Problem for Decomposing Extensions (Zadacha pogruzheniya dlya raspadayushchikhsya rasshireniy)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 120, Nr 6, pp 1217-1219 (USSR)

ABSTRACT: Let a normal extension k/Ω be given with Galois group F, a group G and an epimorphism φ: $G \to F$. The embedding problem consists in the establishment of conditions under which a normal extension K/Ω with Galois group G exists, so that $K \supset k$ and φ is identical with the natural homomorphism of the Galois group of the field onto the Galois group of the subfield.

Let G be a decomposing extension of its inverse image F under the homomorphism φ (i.e. G is assumed to contain a subgroup which is isomorphically mapped onto F by φ). Let N be the kernel of φ, then it is $G = F \cdot N$, and the author says: G is a decomposing extension of the group F with the kernel N.

Theorem: The embedding problem is solvable for an arbitrary algebraic number field k, if G is a decomposing extension with nilpotent kernel.

The proof is based on the same considerations made by the author in former papers [Ref 3,6,8], only instead of the field

Card1/2

The Embedding Problem for De :mposing Extensions SOV/20-120-6-14/59

of Scholz he applies the so-called relative Scholz field. Before proving the theorem the author gives three auxiliary theorems on embedding problems in the mentioned peculiarly defined relative Scholz fields.
There are 10 references, 5 of which are Soviet, 4 German, and 1 American.

PRESENTED: February 18, 1958, by I.M. Vinogradov, Academician

SUBMITTED: February 17, 1958

1. Mathematics

Card 2/2

16(1) SOV/42-14-2-13/19

AUTHOR: Shafarevich, I.R.

TITLE: Impressions of the International Mathematical Congress in Edinburgh

PERIODICAL: Uspekhi matematicheskikh nauk, 1959, Vol 14, Nr 2, pp 243-246 (USSR)

ABSTRACT: The most essential impression of the author is the confirmation of his that in mathematics changes on principle have taken place during the last ten years, where the motive power is homological algebra. Then the author gives a survey on the most essential western addresses. Soviet contributions are assumed to be known and they are not mentioned.

Card 1/1

~~16(1)~~ 16.1200

AUTHORS: Demushkin, S.P., Shafarevich, I.R. SOV/38-23-6-3/11

TITLE: Embedding Problem for Local Fields

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya matematicheskaya, 1959, Vol 23, Nr 6, pp 823 - 840 (USSR)

ABSTRACT: The authors investigate conditions under which a given finite normal extension k/Ω with the Galois group F can be embedded into a larger extension K/Ω with the Galois group G, whereby the given epimorphic mapping $\varphi : G \rightarrow F$ is realized as homomorphism of the Galois group of the field onto the Galois group of the subfield. The authors suppose the kernel A of φ to be abelian. By means of the fundamental properties of the cohomology groups of local fields (of finite extensions of the field of p-adic numbers) the authors show that the conditions of D.K. Faddeyev [Ref 3] and H. Hasse [Ref 4], which are only necessary for the solubility of the considered embedding problem, are also sufficient in the case of local fields. From this it follows that in the case of an algebraic number field k/Ω the conditions of Faddeyev - Hasse are equivalent to the solubility of all corresponding p-adic embedding problems for fields $k_{\mathfrak{p}}/\Omega_p$

Card 1/2

Embedding Problem for Local Fields SOV/38-23-6-3/11

and for all prime divisors $\mathfrak{p}$.
Altogether there are 4 theorems and 2 lemmata.
There are 4 figures, and 5 references, 1 of which is Soviet, 3 German, and 1 American.

SUBMITTED: June 18, 1959

Card 2/2

16(1)

AUTHOR: Shafarevich, I.R. Corresponding Member, Academy of Sciences, USSR SOV/20-124-1-10/59

TITLE: Group of Principal Homogeneous Algebraic Manifolds (Gruppa glavnykh odnorodnykh algebraicheskikh mnogoobraziy)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 1, pp 42-43 (USSR)

ABSTRACT: The author considers the group $\mathcal{G}(\alpha,k)$ of principal homogeneous algebraic manifolds defined by A.Weil [Ref 1], where α is an abelian manifold. The present paper contains an additional statement concerning the relation $\mathcal{G}(\alpha,k) \cong H^1(\mathfrak{G},\alpha)$ formerly proved by the author [Ref 2], and three further theorems which, however, are already surpassed by the results of J. Tate [Ref 8] and others.
There are 8 references, 4 of which are Soviet, 1 American, 1 German, 1 French, and 1 Swedish.

ASSOCIATION: Matematicheskiy institut imeni V.A. Steklova AN SSSR (Mathematical Institute imeni V.A. Steklov, AS USSR)

SUBMITTED: September 13, 1958

Card 1/1

SHAFAREVICH, I.R.

Boris Nikolaevich Delone on his 70th birthday. Usp.mat.nauk 16 no.3:239-244 My-Je '61. (MIRA 14:8)
(Delone, Boris Nikolaevich, 1891-)

SHAFAREVICH, I.R.

Principal homogeneous spaces defined over a field of functions.
Trudy Mat.inst. 64:316-346 '61. (MIRA 15:3)
(Spaces, Generalized) (Fields, Algebraic)

SHAFAREVICH, Igor R.

"Algebraic number fields"
To be presented at the IMU International Congress of Mathematicians 1962 - Stockholm, Sweden, 15-22 Aug 62

Mathematics Insti. imeni V. A. Steklov, Acad. of Sci. USSR (1960 position)

ALEKSANDROV, P.S., red.; BOL'SHEV, L.N., red.; VLADIMIROV, V.S., red.; KUDRYAVTSEV, L.D., red.; LEONT'YEV, A.F., red.; NIKOL'SKIY, S.N., red.; POSTNIKOV, M.M., red.; SOLOMENTSEV, Ye.D., red.; SHAFAREVICH, I.R., red.; GRIBOVA, M.P., tekhn. red.

[English-Russian mathematical dictionary]Anglo-russkii slovar' matematicheskikh terminov. Red. kollegiia; P.S.Aleksandrov (predsedatel') i dr. Moskva, Izd-vo inostr. lit-ry, 1962. 369 p. (MIRA 15:11)

1. Akademiya nauk SSSR. Matematicheskiy institut.
(English language--Dictionaries--Russian)
(Mathematics--Dictionaries)

SAFAREVICI, I.R. [Shafarevich, I.R.]

Problem of field immersion. Analele mat 16 no.3:3-36 Jl-S '62.

SAFAREVICI, I.R. [Shafarevich, I.R.]

Construction of the field of algebraic numbers with the given solvable Galois group. Analele mat 16 no.3:37-93 Jl-S '62.

DEMUSHKIN, S.P.; SHAFAREVICH, I.R.

Second obstacle to solving the problem of imbedding of fields of algebraic numbers. Izv.AN SSR.Ser.mat. 26 no.6:911-924 N-D '62. (MIRA 15:12)

(Algebraic topology)

BOREVICH, Zenon Ivanovich; SHAFAREVICH, Igor' Rostislavovich;
VENKOV, B.B., red.

[Theory of numbers] Teoriia chisel. Moskva, Izd-vo
"Nauka," 1964. 566 p. (MIRA 17:7)

NOVIKOV, S.P.; PYATETSKIY-SHAPIRO, I.I.; SHAFAREVICH, I.R.

Fundamental trends in the development of algebraic topology and algebraic geometry. Usp. mat. nauk 19 no.6:75-82 N-D '64 (MIRA 18:2)

GOLOD, Ye.S.; SHAFAREVICH, I.R.

Tower of fields of classes. Izv. AN SSSR. Ser. mat. 28 no.2: 261-272 Mr-Ap '64. (MIRA 17:3)

SHAFAREVICH, I.R.

Conference on the theory of numbers in the Federal Republic of Germany. Vest. AN SSSR 34 no.12:63 D '64 (MIRA 18:1)

1. Chlen-korrespondent AN SSSR.

SHAFAREVICH, I.R.; AVERBUKH, B.G.; VAYNBERG, Yu.R.: ZHIZHCHENKO, A.B.; MANIN, Yu.I.; MOYSHEZON, B.G.; TYURINA, G.N.; TYURIN, A.N.; PETROVSKIY, I.G., akademik, otv. red.; NIKOL'SKIY, S.M., prof., zamestitel' otv. red.

[Algebraic surfaces.] Algebraicheskie poverkhnosti. Moskva. Nauka, 1965. 214 p. (Akademiia nauk SSSR. Matematicheskii institut. Trudy, vol. 75) (MIRA 18:5)

L 06530-67 EWT(d) IJP(c)

ACC NR: AP7000465 SOURCE CODE: UR/0038/66/030/003/0671/0704

PYATETSKIY-SHAPIRO, I. I., and SHAFAREVICH, I. R.
ORG: none

16
B

Galois Theory of Transcendental Extensions and Uniformization"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Matematicheskaya, Vol. 30, No 3, 1966, pp 671-704

ABSTRACT: The authors construct an algebraic analog of the theory of the uniformization of algebraic manifolds by automorphic functions. The theory constructed is applicable to a certain class of algebraic manifolds over an arbitrary field. In particular, it is applicable over a field of complex numbers to manifolds uniformizable by arithmetic groups. In this case it is equivalent to Hecke's theory of operators. Orig. art. has: 25 formulas. [JPRS: 37,330]

TOPIC TAGS: complex number, transcendental number

SUB CODE: 12 / SUBM DATE: 20 Jul 65 / ORIG REF: 006 / OTH REF: 011

Card 1/1 egh

0923 1170

ACC NR: AP7007071 SOURCE CODE: UR/0020/66/168/004/0740/0742

AUTHOR: Kostrikin, A. I. ; Shafarevich, I.R. (Corresponding member AN SSSR)

ORG: Mathematics Institute im. V. A. Steklov, AN SSSR (Matematicheskiy institut AN SSSR)

TITLE: Pseudo-groups of Cartan and the P-Algebra of Lie

SOURCE: AN SSSR. Doklady, v. 168, no. 4, 1966, 740-742

TOPIC TAGS: algebra, mathematics

SUB CODE: 12

ABSTRACT: After briefly describing Lie algebras, the authors analyze some analogs of Cartan algebra over an algebraically closed field Ka of characteristics $P > 0$. The authors indicate that Cartan-type algebras, together with the classical algebras, exhaust all simple P-algebras of Lie ($P > 5$). They also hypothesize that if a simple Lie P-algebra ($P > 5$) contains no invariant sub-algebra, then is a classical-type algebra. Orig. art. has: 1 formula. [JPRS: 38,417]

Card 1/1 UDC: 519.46-519.48

SHAFAREVICH, M.A., inzhener

Limiter for the lifting arm and load capacity of cranes mounted on trucks. Mekh.stroi. 12 no.8:20-22 Ag'55. (MLRA 8:10)
(Cranes, derricks, etc.)

SHAFARIK, M. (g.Praga); RUL'F, V. (g.Praga)

Self-service stores in Czechoslovakia. Sov. torg. 34 no. 1:48-50 Ja '61. (MIRA 14:1)
(Czechoslovakia—Self-service stores)

1. NIKOLAYEV, A.A.; SHAFAROV, V.A.

2. USSR (600)

4. Golyarkin, F.Ye

7. This book is a failure ("Vitamins in poultry raising." A.V. Trufanov, F.Ye. Golyarkin, Reviewed by A.A. Nikolayeva, V.A. Shafarov), Ptitsevodstvo no. 4, 1953.

9. Monthly List of Russian Accessions, Library of Congress, APRIL 1953. Unclassified.

L 9854-66 EWT(1)/T/EWA(h) IJP(c) AT

ACC NR: AP6003745 44,55 44,55 SOURCE CODE: CZ/0017/65/054/001/0001/0004

AUTHOR: Safar, Lubomir--Shafarzh, L. (Engineer) 42 B

ORG: CKD, n. p., Prague 44,55

TITLE: Current capacity of semiconductor rectifier cells

SOURCE: Elektrotechnicky obzor, v. 54, no. 1, 1965, 1-4 21,44,55

TOPIC TAGS: semiconductor rectifier, semiconductor research, electric current

ABSTRACT: Interrelations of the main parameters of semiconductor rectifier cells are described with respect to optimum utilization. Expressions are presented for determining the temperature of the p-n junction, the temperature of the cooling medium, the characteristics of the rectifier cell, the power loss and the permissible current capacity. Also included are curves for the current capacity of CKD semiconductor rectifier cells, and a comprehensive nomogram for the interrelations of the main parameters influencing the current capacity of the rectifier cell. This work was presented by Engr. M. Kubat, Candidate of Sciences. Orig. art. has: 6 figures, 5 formulas, and 1 table. [JPRS]

SUB CODE: 09 / SUBM DATE: 27Mar63

UDC: 621.382.2

Card 1/1

SHASHKOV, M. A.

Skorostnaia tekhnologiia (High-speed technology). Chelisbgiz, 1952. 63 p.

SO: Monthly List of Russian Accessions, Vol 6, No. 3, June 1953

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R001548510020-5"

SHAFER, B.

Equipment made of metal tubes. Sov.torg. 36 no.12:53-54 D '62.
(MIRA 16:1)
(Stores, Retail--Equipment and supplies)

K[illegible], [illegible], inzh.; SHATKH[illegible], [illegible] V., inzh.

Composite KPV-1-type high-frequency communication equipment for use in electric power transmission lines. Trudy VNIIE no.12:147-151 '61. (MIRA 18:4)

1. Konstruktorskoye byuro Radiozavoda.

NATRADZE, D.A.; OVRUTSKIY, L.S.; SHAFER, E.S.

Method of "immobile" angiopulmography. Zhur. eksp. i klin. med. 3 no.2:65-70 '63. (MIRA 16:10)

1. Institut eksperimental'noy biologii i meditsiny Sibirskogo otdeleniya AN SSSR.
(ANGIOGRAPHY) (LUNGS — BLOOD SUPPLY)

FFOFILOV, G.L.; SHAFER, E.S.; BOGATINA, E.D.

Structure of the bronchial tree in complete situs reversus viscerum. Vest. rent. i rad. 40 no.4:73 Jl-Ag '65. (MIRA 18:9)

1. Institut eksperimental'noy biologii i meditsiny (direktor - dotsent Yu.I. Borodin; nauchnyy rukovoditel' - prof. Ye.N. Meshalkin) Ministerstva zdravookhraneniya RSFSR, Novosibirsk.

SHAFER, G.V., SHAFER, YU.G., VERNOV, S.N., KUZ'MIN, A.I., KRIMSKIY, G.F.,

"Cosmic Ray Outbursts on November 12-15, 1960,"

report presented at the Intl. Conference on Cosmic Rays and Earth Storms, Kyoto, Japan, 4-15 Sept 1961.

3,2410
3,1800 (1041,1046)

29669
S/169/61/000/005/032/049
A005/A130

AUTHORS: Kuz'min, A.I., Sokolov, V.D., Shafer, G.V.

TITLE: On the 27-day variations of cosmic ray intensity

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1961, 13, abstract 5 G 102. (Tr. Yakutskogo fil. AN SSSR. Ser. fiz., 1960, no.3, 111-115)

TEXT: The authors studied the nature of the 27-day variations of cosmic ray intensity on the basis of data from recordings at Yakutsk in 1957-1958. Using the epoch superposition method, they determined the amplitudes of the 27-day variations in intensity of the neutron component at the earth's surface and the hard component at depths of 0.7, 20 and 60 m of w.e.. They show that the results obtained do not agree with the assumption that 27-day variations are meteorological in nature. In view of the fact that the minima of the 27-day variations coincide with effective magnetic storms and that the ratios of the amplitudes of the 27-day variations of the different components are close to the ratios of the amplitudes

Card 1/2

29669
S/169/61/000/005/032/049
On the 27-day variations of cosmic ray intensity A005/A130

of the Forbush effect of these components, the authors assume that these two types of variation are of common nature. They calculated the spectrum of the primary variations of intensity that satisfies the experimental results. In high energy regions the spectrum has the form:

$$\frac{\delta D}{D}(\mathcal{E}) = a\mathcal{E}^{-(0.5 \div 0.7)}$$

N.K.

[Abstractor's note: Complete translation.]

Card 2/2

3.2410
3,1800 (1041,1046)

29670
S/169/61/000/005/033/049
A005/A130

AUTHORS: Freydman, G.I., Shafer, G.V.

TITLE: Some results of comparing the variations of neutron and hard components for the period August - October 1957

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1961, 13, abstract 5 G 103. (Tr. Yakutskogo fil. AN SSSR. Ser. fiz., 1960, no. 3, 116-120)

TEXT: The authors analyze the data from recordings of neutron and hard components obtained at Yakutsk for the period August - October 1957. They show that the variation spectrum of the intensity decrease of cosmic rays associated with magnetic storms has an upper limit of $\varepsilon_{max} \gtrsim 90$ Bev; in years of low solar activity (1951), the upper limit of the variation spectrum did not exceed 80 - 90 Bev. It is noted that during the first 2 - 4 days after the maximum of the Forbush effect the character of the diurnal variations of intensity varies sharply as compared with quiet days. LK

[Abstractor's note: Complete translation.]

Card 1/1

21493
S/020/61/137/004/017/031
B104/B206

9.9130 (incl. 2305, 2705)

AUTHORS: Kuz'min, A. I., Krymskiy, G. F., Shafer, G. V., and Schafer, Yu. G.

TITLE: Cosmic radiation flares from November 12 to 15, 1960

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 4, 1961, 844-847

TEXT: During the period of November 12 to 17, 1960, intense cosmic radiation, connected with events on the sun, were observed in Yakutsk (geomagnetic latitude 51°) by continuous observations. The recordings are shown in the two figures. The sudden intensity increase of the neutron component started on November 12, at 13 hr 45 min (1345 UT) universal time and coincided with the start of a very strong magnetic storm (1348 UT). At 1630 UT the intensity reached a maximum, which was 65 % higher than the normal value. At 1815 UT a second rise of the intensity started and reached a maximum value at 2000 UT, which was 100 % higher than the normal value. Both times radio waves were totally absorbed in the ionosphere above Yakutsk. With the start of the second rise of the neutron component, a drop of the Forbush type was indicated by all recording devices for the

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